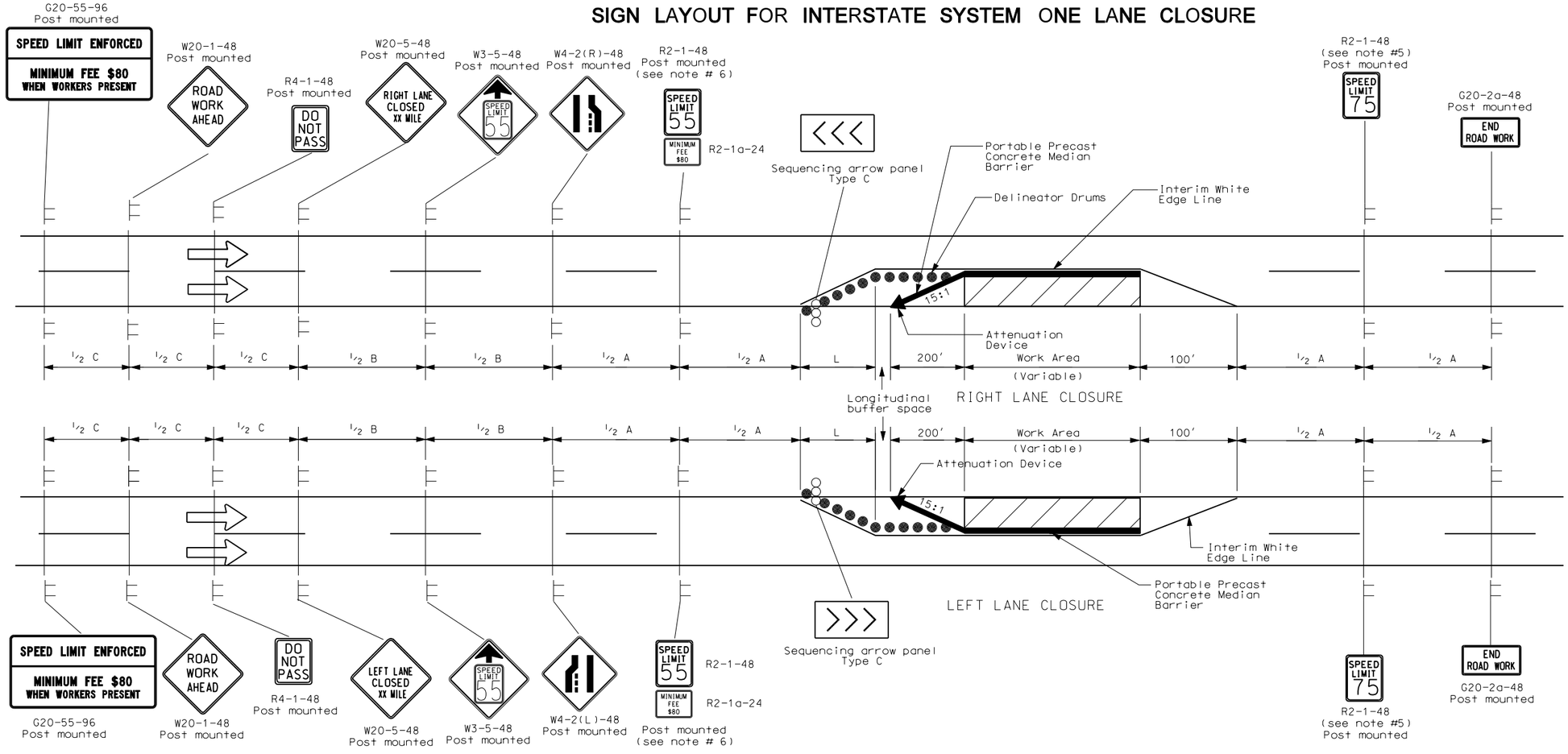
# SIGN LAYOUT FOR INTERSTATE SYSTEM ONE LANE CLOSURE

D-704-18




KEY

- Delineator Drum
- Sign
- Sequencing Arrow Panel
- Work Area

| Longitudinal Buffer Space | |
|---|---|
| *Speed (mph) | Length Min (feet) |
| 20 | 115 |
| 25 | 155 |
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |
| 65 | 645 |
| 70 | 730 |
| 75 | 820 |

* Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

| ADVANCE WARNING SIGN SPACING | | | |
|---|---|---|---|
| Road Type | Distance Between Signs Min. (ft) | | |
| | A | B | C |
| Urban - Low Speed (30 mph or less) | 150 | 150 | 150 |
| Urban - Low Speed (over 30 to 40 mph) | 280 | 280 | 280 |
| Urban - High Speed (over 40 mph to 50 mph) | 360 | 360 | 360 |
| Rural - High Speed (over 50 mph to 65 mph) | 720 | 720 | 720 |
| Urban Expressway and Freeway (55 mph to 60 mph) | 850 | 1350 | 2200 |
| Rural Expressway and Freeway (70 mph to 75 mph) | 1000 | 1500 | 2640 |
| Interstate/4-Lane Divided (Maintenance and Surveying) | 750 | 1000 | 1500 |

Notes

1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of the taper.
   L = Minimum length of taper, or S x W for freeways, expressways, and all other roads with speeds of 45 mph or greater, or
   $W \times S^2/60$ for urban, residential, and other streets with speeds of 40 mph or less.
2. Barricade shown to be placed on roadway shall be on a moveable assembly. Sign to be mounted on barricades shall be mounted with the sign bottom on the top of the top barricade bar. Sign shown to be placed on the roadway shall be placed on skid mounted assemblies.
3. Delineator drums used for tapering traffic and on the tangent shall be spaced at the dimension "S".
4. Sequencing Arrow Panels
   Panels should normally be placed at the beginning of the taper. Where shoulder width does not provide sufficient room, the panel should be moved closer to the work area so that it can be placed on the roadway surface.
   Type A shall be used on roadways with slow moving traffic speeds and low volume (25 mph & 750 ADT or less).
   Type B shall be used on roadways with moderate traffic speeds and volumes (40 mph and 5000 ADT or less).
   Type C shall be used on roadways with high traffic speeds and volumes (over 40 mph and 5000 ADT).
5. The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
6. The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 MPH. Where speed limits are to be reduced more than 30 MPH, a second speed limit sign shall be installed with the desired speed reduction but shall not exceed 30 MPH. The second speed limit sign shall be placed at ½ B.
7. When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.
8. Existing speed limit signs within a reduced speed zone shall be covered.
9. Obliterated or covered pavement marking shall be paid for as Obliteration of Pavement Marking. The covering shall be approved by the engineer.
10. The contractor has the option of using portable sign supports in lieu of post mounted sign as shown on the standard drawings as specified in section 704.03 C.
11. G20-55-96 sign is not required if this standard is part of other traffic control layouts, or the work is less than 15 days.

| NORTH DAKOTA DEPARTMENT OF TRANSPORTATION | |
|---|---|
| 10-1-86 | |
| REVISIONS | |
| DATE | CHANGE |
| 08-15-96 | Buffer space table |
| 09-03-96 | 70 MPH |
| 01-31-97 | Sign spacing |
| 11-15-99 | Add taper width to notes |
| 01-05-01 | Revised notes 3 and 5 |
| 07-19-02 | Reversed End Road Work & speed limit signs |
| 07-25-03 | Revised R2-1, R2-1a, W20-1 |
| 04-01-04 | Rev.fee sign & warning sign & buffer spacing.Rev note 6 add note 11 |
| 12-01-04 | PE Stamp added |
| 06-29-05 | Revised W4-2, Replaced R2-5a with W3-5, Rev. Adv. Warning Table, Rev. Note 6 |

This document was originally issued and sealed by MARK S. GAYDOS Registration Number PE- 4518 , on 06/29/05 and the original document is stored at the North Dakota Department of Transportation